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Case No. 4660/5200

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Timothy H. Daily et al.

Serial No.: 09/846,141

Filed: April 30, 2001

For: STABILIZER BAR

Examiner: Matthew C. Graham

Group Art Unit: 3683

APPELLANTS' BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I. REAL PARTY IN INTEREST

The appellants have assigned all right, title and interest in and to the above-identified application and invention to the Maclean-Fogg Company, a corporation of Delaware having a principal place of business at 1000 Allanson Road, Mundelein, Illinois 60060.

II. RELATED APPEALS AND IN REFERENCES

There are no related appeals or interferences.

III. STATUS OF THE CLAIMS

Claims 1-27 were originally presented in the application. Claims 1 and 19-21 were cancelled prior to final rejection. Claims 2-18 and 22-27 were finally rejected. An amendment canceling Claims 22-27 was filed after the Notice of Appeal. The rejection of each of Claims 2-18 is currently appealed.

IV. STATUS OF AMENDMENTS

A proposed Amendment and Response after Final Rejection was filed on May 16, 2003, within two (2) months after the date of the final rejection. In an advisory action dated June 6, 2003 the Examiner refused to enter the proposed amendment. After filing a Notice of Appeal on June 20, 2003, an Amendment after Appeal was filed on July 15, 2003, canceling claims 22-27.

V. SUMMARY OF THE INVENTION

The invention is embodied in a stabilizer bar 10 for a vehicle suspension system. The bar 10 includes a composite rod 12 and a pair of arms 14 secured to respective opposite ends 20 and 22 of the rod. (Page 2, lines 3-20).

The arms 14 are identical in the embodiment illustrated. Each arm 14 has an inner portion (Fig. 2) which contains an annular recess 30. The annular recess 30 surrounds a central plug 32 which protrudes beyond an annular abutment surface 38. (Page 2, lines 20-27).

The rod 12 is tubular and has an inner surface 24. Each end 20 and 22 of the rod 12 is seated in a corresponding recess 30 in one of the arms 14. The surface 24 surrounds corresponding plugs 32 (Page 2, lines 20-27).

The rod 12 is formed from many layers of substantially unidirectional fibers. In the example illustrated and described, each of thirty-two layers is made up of substantially unidirectional carbon fibers impregnated with a resin binder. Layer thirty-two is the radially outermost layer while layer one is the radially innermost layer. (Page 3, lines 18-30).

The layers one to thirty-two contain carbon fibers oriented at prescribed angles relative to the longitudinal axis of the rod 12. According to one aspect of the invention, the fiber angle of each of layers one to thirty-two relative to the axis of the rod is as illustrated in Table 1. (Page 4). Table 1 is reproduced below for ease of reference:

Table 1

Layer No.	Fiber Angle
1,3,5,7,13,15,21,23,29,31	+45°
2,4,6,8,14,16,22,24,30,32	-45°
9-12, 17-20, 25-28	0°

Figure 4 is a schematic representation of three of the layers twenty-eight, twenty-nine and thirty. The fibers of layer twenty-eight are included in a first set of fibers oriented at 0° with respect to the longitudinal axis of the rod. These first layer fibers are indicated

schematically at 40 and the resin binder is indicated schematically at 56. In the next layer twenty-nine, fibers 52 of the second set are oriented at an angle of +45° with respect to the longitudinal axis. In the next layer thirty, fibers 54 of the third set are oriented at -45° with respect to the longitudinal axis. Fiber layers are cut to the desired width so that they can be rolled about a mandrel (or about a previously-rolled fiber layer) without substantial gaps or overlaps. Junctions between the edges of individual fiber layers are offset circumferentially around the mandrel. Once the thirty-two layers have been wrapped on the mandrel, a layer of cellophane tape is spirally wound over the outermost layer, and the assembly is baked in an oven to cure the resin. (Page 4, lines 1-17).

It is not essential that the fibers be oriented at precisely 0°, +45°, and -45° in the various layers. In each case, a tolerance band in each direction of ±15°, more preferably ±10°, or most preferably ±5° can be used. Also, it is not essential that all of the fibers be oriented as described. Preferably, more than 50%, more preferably more than 75% and most preferably more than 95% of the fibers are oriented in the preferred directions. (Page 4, lines 18-24).

The arms 14 are formed of a light metal alloy such as aluminum. The arms 14 are held to the rod ends 20 and 22 by being crimped radially inwardly. The plug 32 supports the corresponding rod end against radial collapse. (Page 5, lines 3-26.)

Each of two clamps 16 captures a respective end of the rod 12 immediately inboard of a corresponding arm 14. The abutment surface 38 contacts a clamp 76 on each end of the rod to locate the stabilizer bar 10 with respect to the clamp 16. In use, the ends of the arms 14 remote from the rod are coupled to appropriate vehicle suspension elements and the clamps 16 are secured to the vehicle chassis. (Page 1, lines 7-27).

VI. ISSUE

Whether claims 2-18 are patentable under 35 U.S.C. § 103(a) over *Francois* U.S. Patent No. 3,638,455 in view of *Andersen* U.S. Patent No. 4,138,141?

VII. GROUPING OF CLAIMS

Claims 2-18 are grouped for rejection under 35 U.S.C. § 103(a). The claims of this group do not all stand or fall together, however. Applicants submit there are three groups of claims, each group defining subject matter which is separately patentable, to wit:

Group I Claims	Group II Claims	Group III Claims
2	5	8(5)
3(2)	6(5)	9(8)
4(2)	7(5)	10(8)
9(2)	14(5)	11(8)
10(2)	15(5)	12(5)
11(2)	16(5)	13(5)
14(2)		
15(2)		
16(2)		
17(2)		
18(2)		

VIII. ARGUMENT

Claims 2-18 stand rejected under 35 U.S.C. § 103(a) over *Francois* in view of *Andersen*. The Examiner's rationale for each of these rejections is set onto below, verbatim:

> "*Francois* shows a fiber-reinforce (sic) stabilizer bar comprising successive piles (sic) oriented at 40° to 50° (see column 2, lines 15-20) at opposite angles in each pile (sic).
>
> These piles (sic) equate to +45° ±15° for the second pile (sic) and -45° ±15° for the third pile (sic) because the oppositely angled pile (sic) in *Francois* equals -45° to -15°. *Francois* also shows sleeve 16 with a fiber oriented at +40° -50° to 0° ±15°.

> Also note arm 13 having a recess securing the rod. In addition, the particular orientation and type of the fibers would have been obvious to one of ordinary skill in the art as a mere matter of choice dependent on the desired spring rate.
>
> The claimed invention differs from *Francoise* (sic) only in the use of two bars (sic).
>
> *Andersen* shows a stabilizer bar having a rod 72 and arms 78, 90.
>
> Re-claim 3, the term light is relative.
>
> Re-claim 4, bushing (sic) 68 are considered clamps to the broad degree claims (sic).
>
> Re-claim 5, the use of plugs would have been obvious to one of ordinary skill in the art as an additional securing means in view of the teaching in both *Francois* and *Andersen* to use internal connections.
>
> Re-claim 6, the plugs in *Andersen* are integral.
>
> Re-claim 7, the use of crimping would have been obvious to one of ordinary skill in the art as common method of attachment.
>
> Re-claims 8-14, 17, and 18, note the above discussion of claim 2.
>
> Re-claim 15, *Andersen* shows a tapered arm in Figure 1A.
>
> Re-claim 16, *Francois* shows a tubular rod."

Applicants submit that the Examiner has erred in his analysis and reasoning for the following reasons. First, the Examiner has explicitly misconstrued the *Francois* reference, i.e., *Francois* does not teach or suggest what the Examiner contends it does, whereby the references cannot collectively teach or suggest all the elements of claims 2 or 8. Second, the *Andersen* reference does not teach or suggest elements of the invention which the Examiner implicitly relies on it for, whereby the references cannot collectively teach or suggest all the elements of claims 5 or 8. Third, even if the *Francois* and *Andersen* references did

separately teach all elements of claims 2, 5 and 8, they do not collectively suggest combining the elements; in fact they teach against the feasibility of such a combination.

A. Neither Francois Nor Andersen Teaches Or Suggests What The Examiner Relies On It For, Whereby The 35 U.S.C. § 103(a) Rejection Of Claims 2, 5 And 8 Should Be Withdrawn

The *Francois* reference describes and illustrates a filament-wound, resin torsion tube 10 for use as a torsion bar in a vehicle, for example. According to the reference:

> "The filament-wound resin structure. . .is generally conventional, with the continuous filaments in successive plies oriented at equal but opposite angles of about 40° to 50°, preferably about 45°, with respect to the axis of the tube." (Col 2, lines 14-20).

The *Francois* tube 10 comprises a cylindrical, open ended body 11 having a series of axially extending, external splines 12 molded into it during curing. (Col 2, lines 21-40). To provide support for the molded splines 12, a back-up sleeve 16 is secured to the interior of the tube end region 11a. The back-up sleeve is "a cylindrical filament-wound glass fiber and epoxy resin structure having an approximately ±40° - 50° filament angle, and preferably has a tapered thickness section 16a. . . underlying the region of the torsion tube body 11 contiguous with the innermost ends 12a of the splines 12." (Col. 2, lines 59-65).

Contrary to the Examiner's contention, *Francois* does not disclose a sleeve "with a fiber oriented at ±40° -50° to 0° ± 15°". Rather, the sleeve 16, like the tube body 11, contains only two types of layers having filament angles of either +40° to +50° or -40° to -50°. There is no indication that a third type of layer having filament angles of 0° ± 15° is incorporated.

Also, contrary to the Examiner's contention, there is nothing in the record which would indicate that "the particular orientation and type of fibers would have been obvious to one of ordinary skill in the art as a mere matter of choice dependent on the desired spring

rate." The cited references do not support the Examiner. The Examiner cites no other source.

It will also be seen that *Francois* does not disclose an internal plug within a recess in one end of an arm, with that plug also being disposed within an end of the tubular rod. In fact, *Francois* does not employ a supporting plug of any kind on the tubular socket 13.

The *Andersen* reference describes and illustrates (see Fig. 2) a torsion bar 10 for a vehicle. The torsion bar 70 includes a tubular member 72. The tubular member 72 is preferably "made from manganese steel alloys." (Col. 2, lines 62-64). A solid steel bar 78 extends into end 74 of the tubular member 72 in an interference fit. (Col. 3, lines 49-66).

The Examiner correctly states that "*Andersen* shows a stabilizer bar having a rod 72 and arms 78, 80." It will be seen however, that *Andersen* does not disclose arms which have a recess in one end of each arm and a plug positioned within that recess.

The broadest claim of the Group I claims, independent claim 2, defines a stabilizer bar comprising a composite rod having first, second and third sets of differently oriented fibers. The *Francois* cylindrical rod body contains only two different sets of fibers oriented at +40° to +50° and -40° to -50° of the rod axis. The sleeve 16 which is inserted in the rod body 11 of *Francois* also contains only two different sets of fibers, similarly oriented at +40° to +50° and -40° to -50°.

Thus, *Francois* fails to teach or suggest either of two salient features of claim 2. First, the *Francois* rod body 11 does not contain three differently oriented sets of fibers. Second, the sleeve 16, which is not part of the rod body 11, contains only two sets of fibers oriented in a pattern identical to those of two sets in the rod body 11. Thus, contrary to the Examiner's contention, the claimed invention (claim 2) differs from *Francois* by

considerably more than "the use of two bars (sic)", and those differences are embodied in the salient features of the Group I claims.

The broadest claim of group II, independent claim 5, describes a stabilizer bar comprising a fiber reinforced composite rod with first and second arms at opposite ends. Each arm contains a recess. A plug is disposed within each of the recesses. Each recess receives a rod end. Each rod end, in turn, receives a plug. The Examiner contends that "the use of plugs would have been obvious" in view of teachings in both *Francois* and *Andersen.* Whether that general statement is true or not is irrelevant, because claim 5 describes much more than the simple use of plugs. The claim 5 description is of the aforedescribed specifically arranged arms, recesses, plugs and rod ends. Neither reference remotely suggests that specific arrangement.

Claim 8 is the broadest of the Group III claims. It combines the elements of claim 2 with elements of claim 5. As such, it defines a rod and arm configuration in which a specific arrangement of fiber set orientations is present in a rod which is joined to arms having configurations which cooperate with that rod to produce an unobvious combination. As such, claim 8 should be independently patentable, i.e., independent of whether either claim 2 or claim 5 defines patentable subject matter on its own.

As the Examiner knows, for a rejection to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If all words of Claims 2, 5 and 8 are considered, *Francois* and *Andersen* fall far short of rendering any of these claims obvious.

Claim 2 literally requires a rod containing a third layer of fibers oriented at 0° ± 15° relative to the rod axis. *Francois* does not teach or suggest the use of such a layer in a fiber reinforced torsion bar, explicitly or inherently. Claim 5 literally requires arms containing specifically arranged end recesses and internal plugs. Neither *Francois* nor *Andersen* teach or suggest the use of such an arrangement, explicitly or inherently. Claim 8 combines the features of Claims 2 and 5 and, for each of the aforedescribed reasons, neither *Francois* nor *Andersen* teach or suggest those features.

B. Even If The Cited References Did Collectively Disclose All The Elements of Claims 2, 5 or 8, neither Contains A Motivation To Combine Their Features Whereby The 35 U.S.C. § 103(a) Rejection Should Be Withdrawn

A rejection based on obviousness in view of a combination of references is improper even if the combination teaches every element of the claimed invention, unless the references teach a motivation to combine. M.P.E.P. § 2143.01 (citing *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998)). If the "proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." Similarly, "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teaching of the references are not sufficient to render the claims prima facie obvious." M.P.E.P. § 2143.01.

Claims 2-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over a combination of *Francois* in view of *Andersen*. However, neither *Francois* nor *Andersen* teach any motivation to combine one with other. The proposed modification of *Francois* to incorporate various features of *Andersen* would render the invention of *Francois*

unsatisfactory for its intended purpose. Furthermore, combining the torsion tube 10 of *Francois* with the members 78 and 90 of *Andersen* would change the principle of operation of both inventions.

The torsion tube 10 of *Francois* is not designed to accept the solid members 78, 90 of *Andersen*. Such a modification is contrary to the principle of operation of *Francois*. As *Francois* makes clear, the object of his invention is "to provide a cylindrical filament-wound resin torsion tube with at least one splined coupling end region so designed as to afford improved efficiency in the coupling end region." (*Francois*, Col. 1, lines 33-37). For one thing, the male splined structure of the torsion tube 10 in *Francois* cannot be combined with a solid member. Rather the male splined structure must be "positively coupled with a cooperatively splined female structural member 13, e.g., a tubular socket constituting an adjunct of a vehicle axle or body (or of the output of a power source if the tube is to be used in power transmission) or the like, and having a respective internal set of splines." (*Francois,* Col. 2, lines 22-25).

Furthermore, the torsion tube 10 of *Francois* must be "positively coupled with a cooperatively splined" member. The solid members 78, 90 of *Andersen* are not splined and cannot be splined. In *Andersen*, the solid members 78, 90 must be provided with a smooth surface matching the inner surface of the tubular material (*Andersen*, Figs. 1-4E) so that the members 78, 90 extend into the tubular member 72 to engage the tubular member 72 via an interference fit. (*Andersen*, Col. 3, lines 55-57; *Andersen* Col. 3, line 67 to Col. 4, line 1). The solid members 78, 90 of *Andersen* cannot be modified with the splined structure disclosed in *Francois* because the added splines would prevent full insertion of the solid members within the tubular member 72 or would create voids between the outer surface of

the solid members and the inner surface of the tube, thereby frustrating an "important" purpose of the invention disclosed in *Andersen*: "maintaining a snug interference fit to create significant hoop tensile stresses in the tube." (*Andersen*, Col. 4, lines 54-56).

Furthermore, even if the male "members" 78 and 90 of *Andersen* could be modified to be female and provided with splines so as to couple with the torsion tube 10 of *Francois*, the members of *Andersen* do not provide efficiency in coupling, but rather strength. *Andersen* makes clear that the problem with torsion bars made out of tubular material is that "it is a characteristic of tubular material that once it is bent it is drastically weakened in the transition area." (*Andersen*, Col. 1, lines 24-32). To overcome this weakness, *Andersen* must use "members" 78 and 90 that are solid steel bars (*Andersen*, Col. 3, lines 53-54, 67-68) and must insert the steel bars into the tubular material through the transition area where the tubular material is to be bent. *Andersen*, Col. 3, lines 59-60; see also Fig. 2A). Thus, the "members" of *Andersen* must be used to reinforce the "bends" of the tubular material where "the tubing will tend to buckle and fail catastrophically in the transition area." (*Andersen*, Col. 1, lines 32-36).

The interference fit required in *Andersen* does not afford improved efficiency in assembling the coupling ends. To the contrary, *Andersen* requires a number of steps and extensive tooling. A cutting tool is needed to cut the tube to the proper length. (*Andersen*, Col. 4, lines 33-35). Then, an extruder is necessary in order to reduce the inside diameter of the tube. (*Andersen*, Col. 4, lines 35-37). The jaws on the extruder must be in a specialized angle setting. (*Andersen*, Col. 4, lines 37-39). Then, a tapered die is needed so that the tube can be flared. (*Andersen*, Col. 4, lines 39-41). The interference fit requires hydraulic equipment, capable of press fitting the members 78 and 90 into the tube. (*Andersen* Col. 4,

lines 45-48). Finally, a rocking die assembly is needed in order to bend the members and the tube at the reinforced zone. (*Andersen*, Col. 4, lines 50-53).

In sharp contrast, the torsion tube 10 of *Francois* cannot be bent so as to retain the solid members 78, 90 of *Andersen* via an interference fit; rather, the torsion tube of *Francois* must remain "straight." The strength of *Francois* is achieved by keeping the filaments and hence the tube, straight "free of kinks and unbuckled." (*Francois*, Col. 2, lines 41-53). *Francois* states quite clearly that the tube must be held in place within a mold (*Francois*, Col. 2, lines 33-35) and that the filaments must remain "straight". (*Francois*, Col. 2, lines 41-43). For at least this reason, the torsion tube 10 of *Francois* cannot be combined with the solid members 78, 90 of *Andersen.*

Furthermore, the torsion tube 10 of *Francois* must provide no more than a "straight line taper" in order to provide a uniform distribution of torsional stresses. (*Francois*, Col. 5, lines 15-22). In *Francois*, it is critical that radial stresses exerted torsionally be distributed so that the laminar shear strength of the resin/fiber composite is not exceeded at any point. (*Francois*, Col. 4, lines 6-10). As *Francois* makes clear, the distribution of this strain is a function of the axial distance from the tube end. (*Francois*, Col. 4, lines 43-46). See also *Francois*, Equations 1-8, in this regard. Stress must be transferred into the tube as uniformly as possible along the effective length of the splines. (*Francois*, Col. 4, lines 40-43). For these reasons, configuration zones A, B, and C are not bent, but rather gently tapered. (*Francois*, Col. 3, lines 19-73). Accordingly, "the external form of the tube in the Zone A is constant over the entire axial length thereof." (*Francois*, Col. 3, lines 45-50). In Zone B, the height remains constant while the width tapers. (*Francois*, Col. 3, lines 51-55). In Zone C, the splines taper in height and width, but are not bent. (*Francois*, Col. 3, lines 67-73).

Clearly, the tube cannot be bent in order to form a joint with the splineless solid members 78, 90 disclosed in *Andersen*.

The teaching of *Andersen* is, thus, directly contrary to *Francois*. The entire purpose of *Francois* is its "novel coupling end region." (*Francois*, Col. 1, lines 20-31). *Francois* accomplishes this through corresponding sets of internal and external splines. (*Francois*, Col. 2, lines 22-25). The entire purpose of *Andersen* is improved strength through the insertion and bending of solid members within a tube. *Andersen* accomplishes this through extensive metal working. The two references cannot be combined because they teach away from each other.

IX. CONCLUSION

The final rejection of Claim 2 should be withdrawn because it is based on an erroneous interpretation of *Francois* reference. A correct interpretation of that reference leaves the claim with explicitly cited limitations which are neither shown nor suggested. The final rejection of Claim 5 should be withdrawn because specific features of a torsion bar assembly which are literally defined by that claim are not taught or suggested by either *Francois* or *Andersen*. Both of these arguments apply to Claim 8 whereby the final rejection of that claim should be withdrawn. Finally, the final rejection of all three claims should also be withdrawn because there is no suggestion in either reference that their teachings could be combined — in fact applicants submit just the opposite is true, the references teach away from each other.

Respectfully submitted,

Richard G. Lione

Richard G. Lione

APPENDIX

2. A stabilizer bar comprising:

a fiber-reinforced composite rod comprising a plurality of fibers embedded in a resin binder, said rod comprising first and second rod ends;

first and second metallic arms secured to the respective rod ends;

wherein the composite rod comprises a longitudinal axis, wherein the fibers comprise first, second and third sets of fibers, wherein the fibers of the first set are oriented at $0^\circ \pm 15^\circ$ with respect to the axis, wherein the fibers of the second set are oriented at $+45^\circ \pm 15^\circ$ with respect to the axis, and wherein the fibers of the third set are oriented at $-45^\circ \pm 15^\circ$ with respect to the axis.

3. The stabilizer bar of Claim 2 wherein the arms each comprise a light-metal alloy.

4. The stabilizer bar of Claim 2 further comprising:

first and second clamps positioned at least partially around the first and second rod ends respectively, said first and second clamps positioned to abut the first and second arms, respectively, to limit axial movement of the rod with respect to the clamps.

5. A stabilizer bar comprising:

a fiber reinforced composite rod having a tubular configuration and including a plurality of fibers embedded in a resin binder, said rod having first and second open ends;

first and second arms, each arm comprising a respective recess, each of said recesses receiving one of said rod ends; and

first and second plugs positioned within the first and second rod ends within the first and second recesses, respectively.

6. The stabilizer bar of Claim 5 wherein the first and second plugs are integrally connected to the first and second arms, respectively.

7. The stabilizer bar of Claim 5 wherein the arms are crimped over the respective rod ends to secure the arms to the rod.

8. The stabilizer bar of Claim 5 wherein the composite rod comprises a longitudinal axis, wherein the fibers comprise first, second and third sets of fibers, wherein the fibers of the first set are oriented at $0° \pm 15°$ with respect to the axis, wherein the fibers of the second set are oriented at $+45° \pm 15°$ with respect to the axis, and wherein the fibers of the third set are oriented at $-45° \pm 15°$ with respect to the axis.

9. The stabilizer bar of Claim 8 or 2 wherein the fibers of the first, second, and third sets comprise more than 50% of all of the fibers in the composite rod.

10. The stabilizer bar of Claim 8 or 2 wherein the fibers of the first, second, and third sets comprise more than 75% of all of the fibers in the composite rod.

11. The stabilizer bar of Claim 8 or 2 wherein the fibers of the first, second, and third sets comprise more than 95% of all of the fibers in the composite rod.

12. The stabilizer bar of Claim 5 wherein the composite rod comprises a longitudinal axis, wherein the fibers comprise first, second and third sets of fibers, wherein the fibers of the first set are oriented at $0° \pm 10°$ with respect to the axis, wherein the fibers of the second set are oriented at $+45° \pm 10°$ with respect to the axis, and wherein the fibers of the third set are oriented at $-45° \pm 10°$ with respect to the axis.

13. The stabilizer bar of Claim 5 wherein the composite rod comprises a longitudinal axis, wherein the fibers comprise first, second and third sets of fibers, wherein the fibers of the first set are oriented at $0° \pm 5°$ with respect to the axis, wherein the fibers of the second set are oriented at $+45° \pm 5°$ with respect to the axis, and wherein the fibers of the third set are oriented at $-45° \pm 5°$ with respect to the axis.

14. The stabilizer bar of Claims 2 or 5 wherein the fibers comprise carbon fibers.

15. The stabilizer bar of Claims 2 or 5 wherein the arms are each tapered from a larger cross-sectional area to a smaller cross-sectional area, said larger cross-sectional area disposed between the rod and the smaller cross-sectional area.

16. The stabilizer bar of Claims 2 or 5 wherein the rod is tubular in shape.

17. The stabilizer bar of Claim 2 wherein the fibers of the first set are oriented $0° \pm 10°$ with respect to the axis, wherein the fibers of the second set are oriented at $+45° \pm 10°$ with respect to the axis, and wherein the fibers of the third set are oriented at $-45° \pm 10°$ with respect to the axis.

18. The stabilizer bar of Claim 2 wherein the fibers of the first set are oriented $0° \pm 5°$ with respect to the axis, wherein the fibers of the second set are oriented at $+45° \pm 5°$ with respect to the axis, and wherein the fibers of the third set are oriented at $-45° \pm 5°$ with respect to the axis.

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TRANSMITTAL LETTER			Case No. 4660/5200
Serial No. 09/846,141	Filing Date April 30, 2001	Examiner Matthew C. Graham	Group Art Unit 3683
Inventor(s) Timothy H. Daily et al.			
Title of Invention STABILIZER BAR			

OIPE AUG 2 2 2003 PATENT & TRADEMARK OFFICE

TO THE COMMISSIONER FOR PATENTS

Transmitted herewith is Appellants' Brief (in Triplicate); Check for $320; and Return Postcard.

☐ Small entity status of this application under 37 CFR § 1.27 has been established by verified statement previously submitted.

☐ Applicant claims small entity status. See 37 CFR1.27.

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☐ Petition for a ______month extension of time.

☒ No additional fee is required.

☐ The fee has been calculated as shown below:

	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Small Entity Rate	Small Entity Add'l Fee	or	Other Than Small Entity Rate	Other Than Small Entity Add'l Fee
Total		Minus			x $9 =			x $18 =	
Indep.		Minus			x 42 =			x $84 =	
First Presentation of Multiple Dep. Claim					+ $140 =			+ $280 =	
					Total add'l fee	$		Total add'l fee	$

☐ Please charge Deposit Account No. 23-1925 (BRINKS HOFER GILSON & LIONE) in the amount of $______. A duplicate copy of this sheet is enclosed.

☒ A check in the amount of $320 to cover the filing fee is enclosed.

☒ The Commissioner is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this communication or credit any overpayment to Deposit Account No. 23-1925. A duplicate copy of this sheet is enclosed.

☒ I hereby petition under 37 CFR § 1.136(a) for any extension of time required to ensure that this paper is timely filed. Please charge any associated fees which have not otherwise been paid to Deposit Account No. 23-1925. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

Richard G. Lione

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 20, 2003.

Date: Aug 20, 2003 Signature: Richard G. Lione